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Agricultural Memorandum No. 316

The Quality of Northern Brewer Hops Grown in Belgium

L P Smith

Data relating to the alpha-acid content of hops grown in Belgium were available for the 11 years 1958-1968, samples being analysed on several days each year in late August and early September.

Daily on-site meteorological data were not available so temperatures at Uccle were taken as a reference point.

Previous work has suggested that the mean air temperature in the closing weeks of growth was critical for quality, with the probable existence of an optimum temperature implying that very warm conditions would depress alpha acid content.

With the exception of one year (1967), the Belgium results confirm this hypothesis.

The highest alpha-acid sample was compared with the mean air temperature from 1 July to date of sampling. An optimum of 18°C was observable. This is a higher value than hitherto deduced, but the Uccle temperatures with an urban effect, are likely to be above those observed on site.

The data furthermore confirmed that the decrease in quality with temperatures above the optimum was less than the decrease with temperatures cooler than the ideal regime.

With the exception of 1967 a reasonable formula could be devised based on the temperature data.

It should be noted that the 16.6% value sampled on 31 August 1958 was considerably higher than any other sample taken that year.

Results

Year	Date of maximum α-acid	Mean Temperature (°C) 1 July-Date of maximum	α-acid percentage	
1959	29 August	19.6	16.0	
1964	18 August	18.3	16.0	
1958	31 August	18.0	16.6	Optimum
1968	6 September	17.4	15.3	
1961	13 September	17.1	14.8	
1963	3 September	16.8	14.7	
1966	15 September	16.8	14.0	
1960	5 September	16.5	14.6	
1965	31 August	16.5	13.8	
1962	9 September	16.2	13.3	
1967	31 August	18.5	13.8	Anomalous

/Using

Using a formula 16.25 - 1.5A - 0.2B where

A is deficiency below 18.0° and
B is excess above 18.0° of mean temperature, we get

1959	16.25 - 0.32	=	15.95	error	+0.05	)
1964	16.25 - 0.01	=	16.25		+0.25	)
1958	16.25	=	16.25		-0.35	)
1968	16.25 - 0.9	=	15.35		+0.05	)
1961	16.25 - 1.35	=	14.9		+0.1	) Mean error
1963	16.25 - 1.8	=	14.45		-0.25	) 0.25
1966	16.25 - 1.8	=	14.45		+0.45	)
1960	16.25 - 2.25	=	14.0		-0.6	)
1965	16.25 - 2.25	=	14.0		+0.2	)
1962	16.25 - 2.7	=	13.55		+0.25	)
1967	16.25 - 0.1	=	16.15		+2.35	

Any comments or suggestions on this paper should be referred to the Author.

Meteorological Office
Bracknell
Berks. RG12 2SZ

February 1970